AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Original) An apparatus for estimating a received signal strength indicator (RSSI) of a signal transmitted/received in a wireless network, the apparatus comprising:

an analogue/digital converter (ADC) quantizing one of an I (In-phase)-branch signal and a Q (Quadrature)-branch signal into a digital signal, the I-branch and Q-branch signals being extracted from a signal received through the wireless network;

an absolute value calculating unit calculating an absolute value of the digital signal quantized by the ADC and outputting a calculation result;

an accumulate unit accumulating an output of the absolute value calculating unit for a given time period and outputting an accumulated result;

a square unit squaring an output of the accumulate unit and outputting a squared result; and

a multiply unit multiplying an output of the square unit by a given value and outputting a multiplied result, the given value being determined based on the number of input bits, an input clip level, and input resistance of the ADC when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean.

2. (Original) An apparatus for estimating a received signal strength indicator (RSSI) of a signal transmitted/received in a wireless network, the apparatus comprising:

an analogue/digital converter (ADC) quantizing one of an I (In-phase)-branch signal and a Q (Quadrature)-branch signal into a digital signal, the I-branch and Q-branch signals being extracted from a signal received through the wireless network;

an absolute value calculating unit calculating an absolute value of the digital signal quantized by the ADC and outputting a calculation result;

an accumulate unit accumulating an output of the absolute value calculating unit for a given time period and outputting an accumulated result; and

a computer system estimating an RSSI of the received signal by performing multiplication of an output value of the accumulate unit and a given value, the given value being determined based on the number of input bits, an input clip level, and an input resistance of the ADC when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean.

3. (Previously Presented) The apparatus of claim 1, further comprising a receive antenna receiving a signal through a wireless network and outputting the received signal to the ADC, and

wherein a gain from the receive antenna to the ADC is used when determining the given value.

4. (Original) The apparatus of claim 3, wherein variance of an output signal of the ADC is determined by multiplying variance of an input signal of the ADC and a value (k^2) determined by the number of input bits and an input clip level of the analogue/digital input signal.

5. (Original) The apparatus of claim 4, wherein the value (k^2) is determined by the following math figure:

$$k = \frac{2^{B-1}}{V_c}$$

where B denotes the number of input bits of the ADC, and Vc denotes an input clip level of the ADC.

6. (Original) The apparatus of claim 4, wherein power of the output signal of the ADC is determined based on variance of the output signal of the ADC.

7. (Original) The apparatus of claim 6, wherein power (E^2) of the output signal of the ADC is determined by the following math figure:

$$E^2 = \frac{2}{\pi}\sigma^2 = 0.6366\sigma^2$$

where σ^2 denotes variance of the output signal of the ADC.

8. (Original) The apparatus of claim 6, wherein the given value (α) is determined by the following math figure:

$$\alpha = 10^{-\frac{G_{rf}}{10}} \frac{1.2567 \times 10^{-6} V_c^2}{\left(2^{2B}\right) R N^2}$$

where B denotes the number of input bits of the ADC, R denotes an input resistance of the ADC, Vc denotes an input clip level of the ADC, G_{rf} denotes a gain from the receive antenna

to the ADC, and N denotes the number of samples accumulated by the accumulate unit for a given time period.

9. (Original) A method for estimating a received signal strength indicator (RSSI) of a signal transmitted/received through a wireless network, the method comprising:

a) receiving an accumulated value as an input to estimate an RSSI of a signal received through a wireless network, the accumulated value being obtained by quantizing one of I-branch and Q-branch signals extracted from the received signal into a digital signal, taking an absolute value of the digital signal, and accumulating the absolute value for a given time period;

b) performing a squaring operation on the accumulated value; and

c) estimating an RSSI of the received signal by performing a multiplication operation between a result of the squaring operation and a given value, the given value being determined based on the number of input bits, an input clip level, and an input resistance of the ADC when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean.

10. (Original) The method of claim 9, further comprising, before a):

extracting one of I-branch and Q-branch signals from the signal received through the wireless network and quantizing the extracted signal into the corresponding digital signal;

calculating an absolute value of the quantized digital signal; and

accumulating the absolute value for a given time period and outputting an accumulated result.

11. (Previously Presented) The method of claim 9, wherein a gain from a receive antenna to the ADC is used when determining the given value, the receive antenna receiving a signal through a wireless network and outputting the signal to the ADC.

12. (Original) A method for estimating a received signal strength indicator (RSSI) of an RSSI estimation apparatus having an analogue/digital converter (ADC) that quantizes a signal into a digital signal, the signal being one of an I (In-Phase)-branch and Q (Quadrature)-branch signals extracted from a signal received through a wireless network,

wherein power at an input end of the ADC is determined by using the RSSI, the power at the input end being calculated using a signal at an output end of the ADC based on a first relation between variance of an output signal of the ADC and variance of an input signal of ADC when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean and a second relation between the power and the variance in the probability density functions as a Gaussian random variable.

13. (Original) The method of claim 12, wherein the first relation is given by the following math figure:

$$\sigma_o^2 = k^2 \sigma_i^2$$

where σ_i^2 denotes variance of the input signal of the ADC, σ_o^2 denotes variance of the output signal of the ADC, and K is given by the following math figure:

$$k = \frac{2^{B-1}}{V_r}$$

where B denotes the number of input bits of the ADC, and Vc denotes an input clip level when an output of the ADC is saturated.

14. (Original) The method of claim 12, wherein the second relation is given by the following math figure:

$$E^2 = \frac{2}{\pi}\sigma^2 = 0.6366\sigma^2$$

where E denotes power in a probability density function of a Gaussian random variable, and σ^2 denotes variance of the probability density function of the Gaussian random variable.

15. (Previously Presented) The method of claim 12, wherein the RSSI estimation apparatus further comprises a receive antenna receiving a signal through a wireless network and outputting the signal to the ADC, wherein

a gain from the receive antenna to the ADC is used when estimating the RSSI.

16. (Currently Amended) A recording medium storing a program that realizes a method for estimating a received signal strength indication (RSSI) of a signal received through a wireless network, the program comprising:

a) a function of receiving an accumulated value as an input for estimating an RSSI of a signal received through a wireless network, the accumulated value being obtained by quantizing one of I (In-Phase)-branch and Q (Quadrature)-branch signals extracted from the received signal into a digital signal, taking an absolute value of the quantized digital signal, and accumulating the absolute value for a given time period;

b) a function performing a squaring operation on the accumulated value; and

c) a function calculating an RSSI of the received signal by performing a multiplication operation between a result of the squaring operation and a given value, wherein the given value is determined based on the number of input bits, an input clip level, and an input resistance of an analogue/digital converter (ADC) when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean.

17. (Original) A recording medium storing a program the realizes a method for estimating a received signal strength indicator (RSSI) of an RSSI estimation apparatus estimating an RSSI of a signal received through a wireless network, the RSSI estimation apparatus including an analogue/digital converter (ADC) that quantizes one of I (In-Phase)-branch and Q (Quadrature)-branch signals extracted from a signal received through a wireless network,

wherein power at an input end of the ADC using the RSSI, the power at the input end being calculated using a signal at an output end of the ADC based on a first relation between variance of an output signal of the ADC and variance of an input signal of ADC when the probability density functions at input and output signals of the ADC are approximately Gaussian with zero mean and a second relation between the power and the variance in the probability density functions as a Gaussian random variable.